

TABLE 2. SOCIAL SECURITY CONTRIBUTION RATES AND
MAXIMUM TAXABLE EARNINGS, 1975-1990
(By calendar year)

Year	Contribution Rate for Employer and Employee (Each) (In percent)	Annual Maximum Taxable Earnings (In nominal dollars)	Annual Maximum Taxable Earnings (In 1987 dollars)
1975	5.85	14,100	29,836
1976	5.85	15,300	30,609
1977	5.85	16,500	31,009
1978	6.05	17,700	30,898
1979	6.13	22,900	35,930
1980	6.13	25,900	35,796
1981	6.65	29,700	37,190
1982	6.70	32,400	38,228
1983	6.70	35,700	40,809
1984	7.00 ^{a/}	37,800	41,445
1985	7.05	39,600	41,923
1986	7.15	42,000	43,624
1987	7.15	43,800	43,800
1988	7.51	45,000	42,792
1989	7.51	46,800	42,479
1990	7.65	49,500	43,018

SOURCE: *Social Security Bulletin, Annual Statistical Supplement, 1986*, and Congressional Budget Office projections.

a. Employee contributions were partially offset by a 0.3 percent refundable tax credit.

Social Security payroll tax rates and the maximum amount of earnings subject to the tax in 1975 through 1990. Both the tax rate and the maximum amount of earnings subject to tax have risen since 1975. From 1975 to 1987, the Social Security payroll tax rates for employees and employers each increased from 5.85 to 7.15 percent. The two tax rates are scheduled to rise to 7.65 percent by 1990. Over the 1975 to 1987 period, the maximum taxable earnings level in 1987 dollars rose from \$29,836 to \$43,800--a 47 percent real increase. Since 1975, the maximum amount of earnings subject to the tax has been indexed to the growth in average wages. In 1979 through 1981, however, additional "ad hoc" increases occurred. Because of these ad hoc increases, the maximum grew nearly 40 percent faster than average wages between 1975 and 1987. Because prices will increase by more than the factor used to index the maximum, the maximum is projected to fall in real terms between 1987 and 1990.

THE CORPORATE INCOME TAX

Corporate tax revenues as a share of GNP fell from 2.8 percent in 1977 to 1.1 percent in 1983. As Table 3 shows, the decrease reflects both a decline in corporate profits as a percent of GNP and the enactment of legislation in 1978 and 1981 that reduced the effective corporate tax rate. The Revenue Act of 1978 reduced the corporate tax rate on long-term gains and the maximum statutory rate on corporate income. Major changes in the corporate income tax also were contained in ERTA, which significantly liberalized depreciation allowances for tax purposes by shortening the depreciable lives of assets and allowing accelerated depreciation methods, liberalized the investment tax credit, and provided for "safe-harbor leasing."⁴ These legislative changes were partially offset in the Tax Equity and Fiscal Responsibility Act of 1982 and the Deficit Reduction Act of 1984.

The Tax Reform Act of 1986 is anticipated to increase corporate income tax revenues as a percentage of GNP. Although the 1986 act reduced corporate tax rates, a net revenue increase will result from repeal of the investment tax credit, the new alternative minimum tax on corporations, a higher tax on corporate capital gains, reduced depreciation allowances, and a number of accounting changes.⁵

EXCISE TAXES

Federal excise tax revenues from most sources have decreased as a percentage of GNP since 1975. This is the result of an inflation-induced decline in effective rates for some taxes and legislated reductions in others. Many federal excise tax rates are levied on a per unit or specific basis (for example, cents per gallon or per number of ciga-

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4. Safe-harbor leasing allowed a firm with net operating losses to execute a sale and leaseback of new equipment with a firm that had a positive tax liability. This transaction enabled firms with net operating losses to receive the benefits of accelerated depreciation and the investment tax credit through reduced rental payments.
 5. The accounting provision that is expected to produce the most revenue establishes uniform rules for the capitalization of inventory, construction, and development costs. Other major provisions accelerate the taxation of income from installment sales and long-term contracts, and disallow deductions for reserves for bad debts.

TABLE 3. CORPORATE INCOME AND TAXES, 1975-1990
(By calendar year)

Year	Economic Profits as a Percent of GNP ^{a/}	Corporate Federal Income Tax Liabilities as a Percent of Economic Profits
1975	7.4	32.5
1976	8.1	33.5
1977	8.8	31.9
1978	8.8	32.7
1979	8.0	32.5
1980	6.5	33.1
1981	6.2	27.5
1982	4.7	22.5
1983	6.3	22.0
1984	7.1	22.2
1985	6.9	21.0
1986	6.7	23.2
1987	6.6	30.1
1988	6.6	31.0
1989	6.7	32.3
1990	6.7	34.5

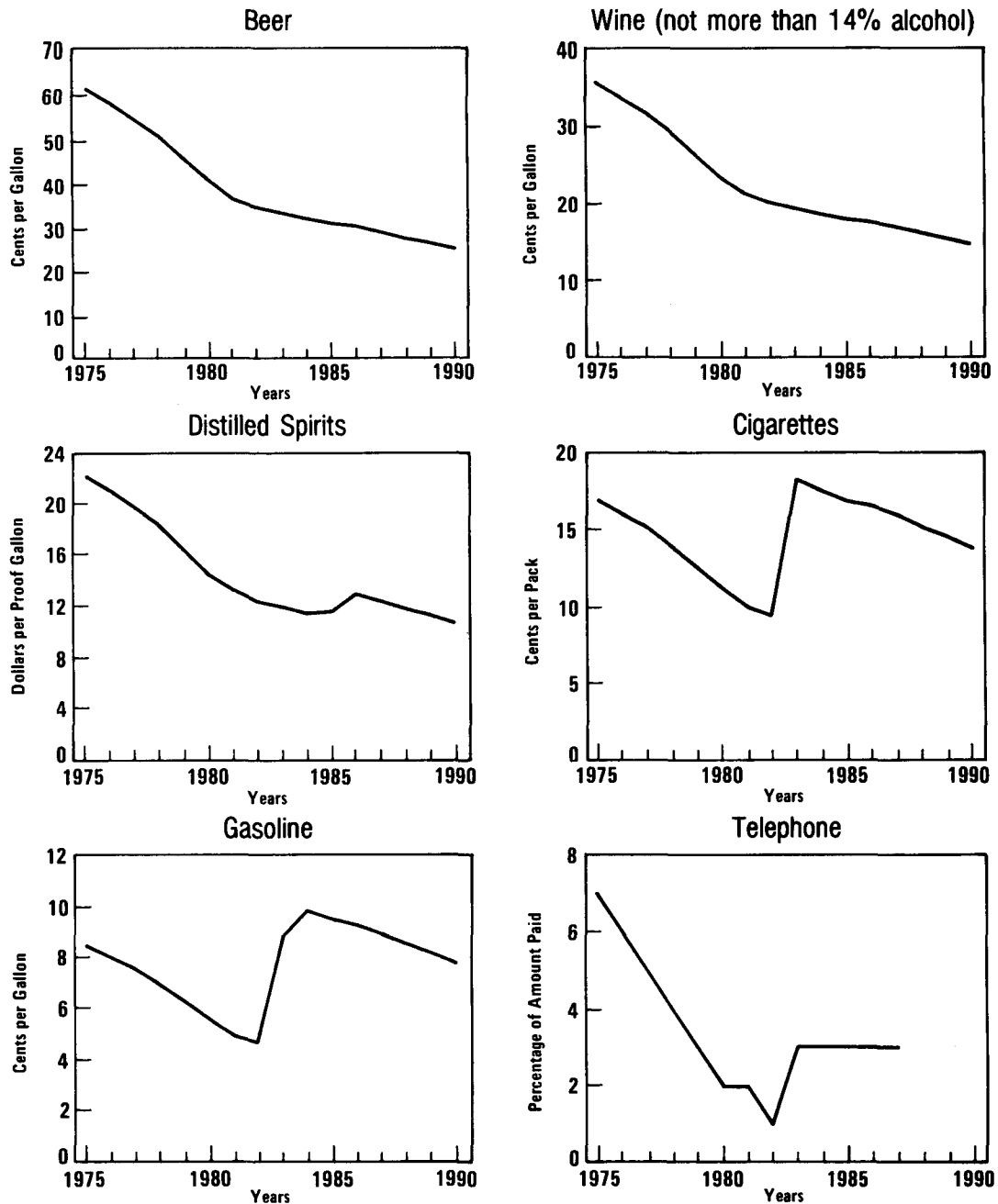
SOURCE: National Income and Product Accounts for 1975 through 1986 and Congressional Budget Office projections for 1987 through 1990.

a. NIPA book profits with the capital consumption and inventory valuation adjustment.

rettes). As prices rise, tax revenues fall as a percentage of expenditures on those items. Until some of these tax rates were increased in 1982 and 1983, most specific tax rates had been unchanged for 30 years. In 1986, the tax rates on beer and wine were at about half their real 1975 levels. Figure 4 shows excise tax rates in constant dollars for these and four other commodities. The tax rate on distilled spirits, which was raised in 1982, decreased by about 40 percent in real terms from 1975 to 1986. Increases in tax rates on both cigarettes and gasoline in 1983 kept those rates in real terms at about the same level or slightly higher in 1986 as they had been in 1975. Because none of these rates is scheduled for future increases, they are expected to decline further in real terms by 1990.

Other excise taxes are levied on an ad valorem basis (that is, as a percentage of expenditures). These taxes maintain their relative importance even as prices rise. However, statutory changes have reduced the relative revenues from some of these taxes. The major ad valorem federal excise tax is the tax on telephone communications,

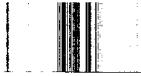
Figure 4.
Federal Excise Tax Rates, 1975-1990 (In 1987 dollars)



SOURCE: Congressional Budget Office tax computations.

which decreased by one percentage point per year from a rate of 10 percent in 1972 to 2 percent by 1980, falling further to 1 percent for 1982. In 1982, the tax was extended and raised to its current level of 3 percent. It is scheduled to end on December 31, 1987.

The primary offsetting factor that temporarily boosted excise tax revenues as a percentage of GNP came in 1980 with the enactment of the windfall profit tax on the production and sale of domestic crude oil. Windfall profit tax revenues peaked at \$23.3 billion in 1981. Without revenues from this source, federal excise tax revenues as a share of GNP would have declined even further between 1975 and 1985. The decline in oil prices will cause revenues from the tax to be less than \$300 million per year after 1986.



CHAPTER III

WHO PAYS THE TAXES?

Although tax payments are made by corporations and other employers as well as by individuals, the economic burden of all taxes ultimately rests on the population. While it is obvious to most taxpayers that their spendable income is reduced by the taxes they pay directly, many have difficulty in seeing that their income and purchasing power are also reduced by the corporate income tax, the employer share of Social Security payroll taxes, and federal excise taxes. Corporations may send checks to the Internal Revenue Service in payment of the corporate income tax, as do all employers for their share of the payroll tax, and manufacturers or retailers for federal excise taxes; yet these business entities do not pay the tax in an economic sense. Rather, their taxes are passed on to families either through reduced returns to shareholders, lower wages to employees, or higher prices to consumers.

The allocation of business taxes to particular families is a critical problem in determining the overall federal tax burden of families. Families would share the tax burden of business taxes equally if they received their incomes in the same proportions from the same sources and spent their incomes on the same combination of goods--that is, they would have the same proportional decline in income or purchasing power. But families differ in how they receive and spend their incomes.

TAX INCIDENCE

Economists speak of the reduction in family income or purchasing power from paying a tax as the incidence of that tax. Taxes affect the amount of income received by the family (sources of income) and the prices of goods and services purchased by the family (uses of income). Because the effects of most major federal taxes on the relative prices of different goods and services are either small or difficult to estimate, the discussion of tax incidence that follows concerns mainly the effects

on sources of income. Only the treatment of federal excise taxes includes the effects on uses of income.

Individual Income and Payroll Taxes

The economic burdens of the individual income tax and of the employee share of Social Security payroll taxes are fairly easy to determine. Most economists agree that families who pay these taxes suffer the full loss in income. Both taxes can be shifted, however, if they reduce the total supply of labor or of savings.^{1/} Businesses then would be forced to offer higher wages or higher returns to investors in order to bring forth more workers or more savings for investment. Some of the economic loss from the taxes would be shifted temporarily to these businesses, which in turn would be forced either to accept the loss in the form of lower profits or to pass it on to consumers by raising prices.^{2/}

The burden of the employer's share of Social Security payroll taxes, while less direct, most probably also falls to workers, given the same assumptions about the supply of labor and savings.^{3/} Indeed, the long-run economic burden of the employer share of the payroll tax should be no different than the long-run impact of the employee share.

1. Some estimates suggest that savings and labor supply respond to changes in taxes. See Jerry Hausman, "Labor Supply," in Henry J. Aaron and Joseph A. Pechman, eds., *How Taxes Affect Economic Behavior* (Washington, D.C.: Brookings Institution, 1981); and Michael J. Boskin, "Taxation, Saving and the Rate of Interest," *Journal of Political Economy*, vol. 86 (April 1978). For a critique of the latter study, see E. Philip Howrey and Saul H. Hymans, "The Measurement and Determination of Loanable-Funds Saving," *Brookings Papers on Economic Activity*, no. 3 (1978), pp. 655-705.
2. Even with a fixed supply of labor and savings, individual income taxes on capital income can be shifted among families because certain types of investment are afforded preferential tax treatment. For example, income from state and local bonds is exempt from federal income taxes, while interest paid on borrowing to purchase housing can be deducted from income. Some families, particularly those in high-income tax brackets, will invest more heavily in tax-preferred assets, reducing the before-tax return on those assets but raising the before-tax return on assets that are fully taxed. This behavior shifts some of the burden of individual income taxes on capital income to owners of tax-preferred assets. See Harvey Galper and Eric Toder, "Transfer Elements in the Taxation of Income from Capital," in Marilyn Moon, ed., *Economic Transfers in the United States*, Bureau of Economic Research, Studies in Income and Wealth, vol. 49 (Chicago: The University of Chicago Press, 1984).
3. For a discussion of the incidence of the Social Security payroll tax, see John A. Brittain, *The Payroll Tax For Social Security* (Washington, D.C.: The Brookings Institution, 1972), pp. 21-59.

The distinction between the two is artificial because the payroll tax is a tax on labor regardless of whether it is paid by the buyer or the seller. In the short term, however, the distinction can be real because nominal wages are not likely to adjust immediately to changes in tax rates. Increases in the employee share of Social Security payroll taxes will initially reduce labor income if nominal wages do not rise to cover the new tax, while, for the same reason, increases in the employer share will initially reduce employer profits or cause consumer prices to rise.

The full amount of the payroll tax is the difference between what employers are willing to pay for workers and what employees actually receive. If the supply of labor is unaffected by the tax, employers will not change the total amount of compensation they are willing to pay. Thus, the full amount of the Social Security payroll tax represents a reduction in labor income.

A long-run reduction in labor income can come about either through a reduction in nominal wages or an increase in consumer prices with no change in nominal wages. In either case, real labor income is reduced. Whether the reduction occurs because of wage cuts or price increases depends on macroeconomic policies that determine the overall price level. If prices rise, the economic burden of the payroll tax may fall on other income as well.^{4/}

On balance, the body of empirical evidence supports the position that employers are able to shift the economic burden of the Social Security payroll tax. It does not clearly establish whether the tax reduces nominal wages or increases prices.^{5/}

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4. Under certain restrictive assumptions, the incidence of a tax shifted to consumption is equivalent to the incidence of a tax on wages, over the lifetime of the consumer/worker. For a discussion of this issue, see Anthony B. Atkinson and Joseph E. Stiglitz, *Lectures on Public Economics* (New York: McGraw-Hill Book Company, 1980), pp. 70-72; Mervyn A. King, "Savings and Taxation," *National Bureau of Economic Research, Working Paper #428* (January 1980); and Joseph E. Stiglitz, *Economics of the Public Sector* (New York: W.W. Norton & Company, 1986), pp. 362-363.
 5. Research on the incidence of payroll taxes is extensive and still growing. Supporting the conclusion of complete shifting of the employer portion of the payroll tax are earlier results from John Brittain (1972) and Wayne Vroman, "Employer Payroll Tax Incidence: Empirical Tests With Cross-Country Data,"

The Corporate Income Tax

There is considerably less agreement regarding the corporate income tax. Although it is levied on corporations, most economists believe that only in the short run does the full tax burden fall solely on the owners of corporate capital. In the longer term, it reduces the return to all capital investment. The tax initially lowers the return to investment in the corporate sector, but because investors seek to maximize their returns, investment shifts out of the corporate sector and into the noncorporate sector until the rates of return on investment in the two sectors are equalized. Allowing for sufficient time and mobility of capital, the burden of the tax will eventually fall on all capital income.^{6/}

Only under the assumption that the supply of savings is fixed will the burden of the corporate income tax fall exclusively on capital income. If savings decline in the face of a corporate tax, some of the

5. (Continued)

Public Finance, vol. 2 (1974), pp. 241-270, and more recent research by Wayne Vroman, "An Interindustry Analysis of Employer Payroll Tax Incidence," Report to the U.S. Department of Health and Human Services (Washington, D.C., June 1986). As Vroman (1986) reports, different time series studies of payroll tax rates and money wages have found that the tax is shifted fully to money wages, that there is no shifting of the tax to wages, and that the tax is shifted only partially to wages. These studies are summarized in a paper by Richard F. Dye, "Evidence on the Effects of Payroll Tax Changes on Wage Growth and Price Inflation: A Review and Reconciliation," Office of Research and Statistics Working Paper No. 34, Social Security Administration (Washington, D.C., April 1984). Vroman (1986) also cites payroll tax incidence studies using other types of data. The results from these studies are equally diverse.

6. Strictly speaking, this result depends on certain assumptions concerning the price elasticity of demand for corporate output, the degree of substitutability between capital and labor in the corporate and noncorporate sectors, and the relative capital intensities of the two sectors. Under alternative assumptions, owners of capital may bear slightly more or less than 100 percent of the tax, and some of the burden may fall on workers or consumers. A number of studies have demonstrated that the result of full shifting to capital incomes holds under a wide range of conditions. See Arnold C. Harberger, "The Incidence of the Corporate Income Tax," *Journal of Political Economy*, vol. 70 (June 1962); Arnold C. Harberger, *Taxation and Welfare* (Chicago: University of Chicago Press, 1974); John B. Shoven, "The Incidence and Efficiency Effect of Taxes on Income From Capital," *Journal of Political Economy*, vol. 84 (December 1976); and the summary of those and other studies in J. Gregory Ballentine, *Equity, Efficiency, and the U.S. Corporation Income Tax* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980), pp. 32-50.

burden may fall on workers through lower wages.^{7/} This occurs because as savings decline there is less new investment. The stock of capital grows more slowly and productivity declines because workers must use older, fewer, and less technologically advanced tools and machines. Because wages are linked to productivity, labor income bears some of the corporate tax burden.

Even if there is no decline in savings, workers may bear some of the burden of the corporate income tax if the tax leads to a reduction in domestic investment. Because capital is thought to be mobile internationally, high corporate taxes could cause investors to take their money overseas (or, alternatively, discourage foreign investment in this country).^{8/} But workers would not bear the full burden unless international capital markets were free and open and there were no offsetting changes in taxes on investment in foreign countries.

Excise Taxes

Selective excise taxes are thought to be passed on to consumers, at least initially, through higher prices for the taxed items. If these price increases translate into a higher general price level, real incomes fall and the tax is eventually shifted to family incomes. If government policies prevent prices from rising, the reduced demand for taxed items will reduce wages and returns to shareholders in the industries

6. (Continued)

This result does not take account of the method by which new corporate investment is financed. If new investment is financed by debt rather than equity, the burden of the tax may not be shifted to all capital income but instead fall only on corporate shareholders. This follows from the deductibility of interest payments under both the corporate and the individual income tax. Because interest is deductible, the return to investment in the corporate sector is unaffected by the tax, and no resources are shifted to the noncorporate sector. For a discussion of this issue, see Joseph E. Stiglitz, "Taxation, Corporate Financial Policy, and the Cost of Capital," *Journal of Public Economics*, vol. 2 (February 1973), pp. 1-34; and Ballentine (1980), pp. 51-71.

7. See Martin Feldstein, *Capital Taxation* (Cambridge: Harvard University Press, 1983).
8. This more recent view of the incidence of the corporate income tax is expressed in Arnold C. Harberger, "The State of the Corporate Income Tax: Who Pays It? Should It Be Repealed?," in Charles E. Walker and Mark A. Bloomfield, eds., *New Directions in Federal Tax Policy for the 1980s* (Cambridge, Mass.: Ballinger, 1983).

producing those items. This can lead to a reduction in all incomes if workers and investors drive down wages and the returns to capital in other industries.^{9/} Even if excise taxes are passed on to family incomes, they impose an additional burden on the uses of income. Relative prices change as the price of those items against which the taxes are levied rise against the prices of other items.

INCIDENCE ASSUMPTIONS USED IN THIS STUDY

This study makes the following assumptions as to the incidence of taxes.

- o All of the reduction in spendable income from the individual income tax is assumed to fall on families who directly pay the tax. The tax does not shift among families.
- o Workers are assumed to bear both the employee and employer shares of payroll taxes. If some portion of the employer share of the tax is passed forward in the form of higher prices rather than lower wages, high-income families will pay a larger percentage of the tax. But this study assigns all the burden to employee compensation.
- o The corporate income tax is allocated in two different ways. Since there is no consensus as to the incidence of the tax, the study uses assumptions that reflect a greater and lesser progressive allocation of the corporate tax. Under the first alternative, the tax is allocated to all capital income. This is the appropriate treatment if the supply of investment capital is fixed, as in an economy where the rate of savings is not responsive to changes in rates of return and domestic capital markets are isolated from international markets. In the second alternative, the tax is allocated to employee compensation. This is an appropriate treatment if the supply of investment capital is highly responsive to taxes and

9. Browning and Johnson (1979) hold that the economic burden of excise taxes falls to family incomes except for income from government transfer programs, because those payments are indexed against increases in the price level.

other prices, or in a world economy with interdependent capital markets.

- o Economic theory suggests that excise taxes affect both family incomes and relative prices. The study allocates federal excise taxes only to consumer prices in order to emphasize the impact on relative prices. Because the amount of federal excise taxes is small in comparison to total incomes (about 1 percent), the effect on real family incomes is assumed to come through changes in the price level. Nominal family incomes are thus unaffected by excise taxes.



CHAPTER IV

MEASURING FAMILY INCOME

The distribution of taxes by family income classes depends on the way in which family income is measured. In this study, family income is defined in a manner generally consistent with the definition of income used by the tax system.

The distribution of family income was measured for three representative years during the 1975-1990 period. The years chosen for analysis were 1977, 1984, and 1988. The two historical years were years of relatively high growth in GNP, declining unemployment rates, and rising but relatively modest rates of inflation. The similarity of these years reduces the effect of macroeconomic differences on the results. The years were also chosen to reflect important changes in federal tax law. In 1977, the Tax Reform Act of 1978 and the Economic Recovery Tax Act of 1981 had not yet been enacted. By 1984, those changes were in place, but payroll tax increases enacted in 1983 and the Tax Reform Act of 1986 were yet to come. By 1988, most changes from the 1986 act will be in place.^{1/}

The distribution of family income became more unequal between 1977 and 1984, a trend that is expected to continue through 1988. In particular, a growing share of both labor and capital income was received by the top 1 percent of families in the income distribution. For the lowest 20 percent of families, a drop in government transfer payments was the most significant change between 1977 and 1984.

DEFINING FAMILY INCOME

One straightforward definition of annual income is simply cash received during the year. The cash may come as earnings, returns to

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1. The complete elimination of passive losses and the deduction for consumer interest will not be fully phased in until 1991. Taxpayers can claim 40 percent of these deductions in 1988.

investment, payments from the government, or retirement income. This simple definition, however, excludes items that may be of considerable monetary value but are not received in the form of cash payments. Among these are certain in-kind transfer payments such as food stamps, rent subsidies, government-sponsored Medicare or Medicaid health insurance, and nonmonetary payments by employers such as health and life insurance premiums.

A more comprehensive definition of annual income that measures the change in total family resources is economic income. Economic income includes not only cash and noncash payments received, but also the flow of services from durable items such as houses or automobiles, along with increases in a family's wealth that accrue but are not realized (converted to cash). Under this definition, income includes increases in wealth from appreciation of financial assets such as stocks and bonds, and physical assets such as houses and land. Income also includes the increase in future pension benefits at the time those benefits accrue. Not counted as income in this definition are pension benefits received at retirement and capital gains realized from the sale of stocks, bonds, or physical assets. These activities do not represent new income but only the conversion of existing family wealth into cash.^{2/}

The individual income tax system generally treats income as cash received.^{3/} It excludes certain types of cash income, such as welfare benefits and, for the majority of taxpayers, Social Security benefits. Nonmonetary payments such as food stamps, Medicare and Medicaid, and employer-provided health insurance are not included in income. Appreciation of financial and physical assets is taxed only when these

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2. Ideally, a comprehensive measure of annual income would include the change in the real value of total family resources rather than the nominal value. Determining income on a real basis requires numerous conceptually and administratively complex adjustments to the accounting systems used by business and the government. These issues are discussed in C. Eugene Steuerle, *Taxes, Loans, and Inflation: How the Nation's Wealth Becomes Misallocated* (Washington, D.C.: The Brookings Institution, 1985).
 3. In some circumstances, accrued income or noncash income is taxable under the individual income tax. For example, owners of bonds that have been stripped of their coupons are required to report interest annually. The value of employer-provided health insurance must be included in income if the employer discriminates in favor of highly-paid employees in providing the benefits.

gains are realized. Pension benefits are taxed when they are received rather than as they accrue.

In this study, income is measured in a manner generally consistent with the federal tax system except that all cash transfers are included in family income. Family income includes the following cash income items: **labor income**, consisting of wages, salaries, and self-employment income; **capital income**, comprising net rents, interest, dividends, and realized capital gains; **government transfers**, including Social Security benefits, unemployment insurance benefits, veterans benefits, workers' compensation, AFDC, SSI, and other cash welfare benefits; and **other income**, made up of pension benefits, alimony, and child support. In order to measure income before all federal taxes, family income also includes the employer share of federal social insurance taxes and the federal corporate profits tax.

The derivation of family income for 1977 and 1984 is shown in Table 4. Beginning with the Department of Commerce measure of personal income, adding personal contributions for social insurance, employer contributions for social insurance (excluding nonfederal unemployment insurance taxes), federal corporate profits taxes, and undistributed corporate profits yields pretax adjusted personal income.^{4/} This measure of income approximates the economic definition of income except that it does not take full account of the change in the value of capital assets. Undistributed corporate profits approximate the change in the value of corporate assets.^{5/} Missing, however, are the changes in the value of noncorporate equities, business inventories, farm assets, and nonfarm real estate.

4. Personal income equals the sum of wage and salary disbursements, other labor income, proprietors' income, rental income, personal dividend and interest income, and transfers, less personal contributions for social insurance. Pretax adjusted personal income can also be derived from national income by adding to national income transfer payments and interest paid by consumers and government, and subtracting interest and dividends received by government, nonfederal corporate income and unemployment insurance taxes, and the excess of wage accruals over wage disbursements.
5. Undistributed corporate profits are thought to measure the change in the value of corporate assets over a long period of time. In any particular year, the change in the value of corporate assets may not reflect that year's profits.

Family income, the measure used in this analysis, equals pretax adjusted personal income minus income received on a noncash basis with adjustments for pensions and capital gains to include cash receipts rather than accruals of pension and capital gains income. The major noncash income exclusions are in-kind government transfer payments and imputed interest payments from banks and other financial intermediaries. Pensions are converted to a cash basis by subtracting employer contributions to private pension and welfare funds and the imputed capital incomes of pension funds, and adding

TABLE 4. DERIVATION OF FAMILY INCOME FOR 1977 AND 1984
(In billions of dollars)

	1977	1984
Personal Income (from the National Income and Product Accounts)	1,608	3,109
Plus: Additions to Personal Income	257	458
Personal contributions for social insurance	61	133
Employer contributions for social insurance (excluding nonfederal unemployment insurance taxes)	78	172
Corporate profits federal tax liability	56	59
Undistributed corporate profits	62	94
Equals: Adjusted Personal Income	1,865	3,567
Minus: Deductions from Adjusted Personal Income	233	399
Noncash federal, state, and local transfer payments	54	131
Noncash wages, rents, interest, and proprietors' income	64	148
Employer contributions for federal, state, and local employee retirement and workers' compensation	32	60
Employer contributions to private pension and welfare funds in excess of cash benefits paid by those funds	66	105
Undistributed corporate profits in excess of realized capital gains	17	-45
Equals: Family Income	1,632	3,168

SOURCE: National Income and Product Accounts. Realized capital gains are from the Internal Revenue Service, *Statistics of Income*.

cash benefits from private pension plans.^{6/} Undistributed corporate profits are excluded from income, but realized capital gains are included.

Because it represents a major departure from the way in which economists would prefer to measure income, this treatment of noncash income, pension income, and capital gains merits special discussion.

In-Kind and Imputed Income

Many families receive some in-kind income either from government transfer payments or from nonwage employer income. The major components of in-kind government transfers are Medicare, Medicaid, and food stamps. Most in-kind employment income, or fringe benefits, comes from employer contributions to private health and life insurance funds. However, in-kind employment income also includes less identifiable items, such as the use of company cars, or subsidized meals and travel.

The first problem in measuring in-kind income is assigning an appropriate value to that income. One method is to assign the market value of the good or service--that is, the amount the same good or service sells for in the private market place. However, it is difficult and sometimes impossible to find a private market equivalent for certain types of income. A second approach is to value the good or service at its cash equivalent--that is, the amount of cash that would make the recipient of the item feel equally well off. For low-income families who receive in-kind transfers but could not afford to purchase the same services, the cash-equivalent value may be substantially less than the market value.

The second problem is to determine which families receive in-kind benefits. While recipients of in-kind government transfers are usually identifiable, recipients of certain types of in-kind employment income are difficult to identify from available data.

The major components of imputed income are imputed rents from owner-occupied housing and imputed interest from banks and other

6. Cash benefits from public employee retirement plans are counted as part of government transfer payments.

financial intermediaries. Imputed income from owner-occupied housing is the amount of rent homeowners would have to pay to live in their houses if they did not own them, minus the costs of owning and maintaining the houses. The imputed income from financial institutions is the fees that families would have to pay for the services provided by those institutions. Rather than charge fees, banks and other financial intermediaries often pay a lower rate of interest on money deposited with them than they receive from investment of that money. The difference between the interest paid and interest earned is imputed income earned by the family.

The problems in valuing imputed rental and interest income are similar to those in valuing in-kind income (see above), although it is easier in these cases to find equivalent services in the private market. It is more difficult to determine which families receive imputed income because none of the data used includes complete information on family incomes and assets.

Because of the difficulties in determining the appropriate value of in-kind and imputed income and in assigning values to particular families, the value of all in-kind and imputed income was excluded from the definition of family income used here. Excluding noncash income causes estimated effective tax rates to be higher than they would be if a broader income definition were used. The effect of excluding both in-kind and imputed incomes on the distribution of effective tax rates by income classes is not clear. The exclusion of in-kind benefits, particularly medical insurance, raises effective tax rates by relatively more in the bottom half of the income distribution. Conversely, lower-income families are less likely to own homes or to have other assets that produce imputed income. Excluding imputed income thus raises effective tax rates by relatively more in the upper part of the income distribution.

Pension Income

A method for counting pension income consistent with a comprehensive definition of income would be to count pensions at the time benefits accrue rather than when they are received. For participants in employer-provided defined benefit plans, in which retirement benefits are specified according to years of service and salary at retirement, current income would include the increase in the value of future benefits (properly discounted by the length of time

until retirement and the probability that the negotiated benefits will actually be paid) attributable to employment in the current year. For participants in employer-provided defined contribution plans, in which current contributions by employers into employee retirement accounts are specified but future payments are not, current income would include those contributions plus the yield on the accumulated funds in the retirement account.

In this study, pensions are counted as income when benefits are received. Counting pensions when they are received rather than when they are accrued is consistent with the way they are treated by the tax system. This treatment makes the timing of tax payments match the timing of the measure of income. If pensions were counted at accrual rather than at receipt, actual tax payments could exceed measured income for elderly taxpayers. Tax payments would be low relative to measured incomes for young workers if pension accruals were counted as income, unless accrued tax liabilities also were attributed to these families. Including pensions when they are received rather than accrued eliminates the difficult measurement problem of assigning appropriate amounts of pension accruals and accrued tax liabilities to specific families.

Capital Gains

A comprehensive definition of income measures capital gains as increases in family wealth at the time these gains accrue. The tax system measures capital gains only when they are realized. Including realized rather than accrued capital gains is less satisfactory than the similar treatment of retirement income. First, unlike pensions, many accrued capital gains are never realized. For pensions, the issue is when to count a known amount of income. For capital gains, the issue is not only when to count income but how much of it to count. Second, realizations of capital gains appear to be particularly responsive to changes in the tax system. Thus, measured family income in any particular year reflects a response by families to the tax system. The discretionary aspect of measured income confounds attempts to measure changes in the tax burden. This issue will be treated later in considering actual distributional results.

In this study, only realized capital gains are counted as income. Counting realized rather than accrued gains in family income avoids a number of problems. The first is that of measuring accrued gains.

Over the long term, accrued gains on corporate stock are thought to reflect after-tax corporate profits retained by the corporation. In any particular year, however, gains and losses based on changes in the value of stock have little to do with changes in profits. Accrued gains on other assets such as farms, unincorporated businesses, and housing are difficult to measure.

Even if it were possible to measure accrued gains, assigning these gains to individual families would be difficult. One measure of ownership of corporate stock is the receipt of dividends, but families with low tax rates are more likely than families with high tax rates to own dividend-producing stocks rather than stocks that appreciate in value. Assigning accruals on the basis of dividends could attribute too much income to families in the middle of the income distribution and too little to families at the upper end. Even more formidable are the problems with imputing gains on noncorporate assets. While families that own homes can be identified, the change in the value of those homes is not reported. Families that receive income from unincorporated businesses are also identified, but the reported income from these businesses is often negative and bears little relation to the change in their accrued value.

Measuring Income on an Annual Basis

In this analysis, family income is measured over a single year. Income averaged over a number of years would better represent the true economic circumstances of families than a single year's income, but data available on a multiyear basis for individual taxpayers are inadequate for this study. In any particular year, income may be lower than normal because of a period of unemployment, unusually low income from self-employment, or a drop in investment returns. Capital gains realizations are especially volatile. In any single year, gains will be unusually high if a person sells an asset that has been growing in value for a long time or has changed dramatically in value. If incomes were averaged over a number of years, there would be less dispersion in the distribution of incomes and less dispersion in the distribution of effective tax rates.

Income measured on an annual basis tends to understate the true economic circumstances of many of the lowest-income families. While most taxes are also based on annual incomes and thus reflect a family's current income status, excise taxes, as measured in this

study, depend upon family expenditures. Expenditures probably are related more closely to an expected long-term level of income rather than to income in a single year. Families whose income may have fallen temporarily are likely to maintain their previous level of expenditures in the expectation that their income will return to more normal levels. Young families may spend a large fraction of their current income, even more than 100 percent, because they expect their incomes to rise significantly over time. Measuring the distribution of excise taxes over family income measured in a single year will tend to overstate the burden of those taxes on permanently low-income families.

THE DISTRIBUTION OF FAMILY INCOME IN 1977, 1984, AND 1988

Pretax family income totaled \$1,436 billion in 1977 and \$2,814 billion in 1984. In each year, pretax family income was equal to 88 percent of family income computed from the National Income and Product Accounts (NIPA) and reported in Table 4. Almost the entire difference resulted from differences in the amount of reported capital incomes and proprietor income, but transfer incomes were also lower than their NIPA equivalents.

Table 5 shows the distribution of total family incomes by population decile and the share received by the top 5 percent and 1 percent of population in 1977, 1984, and 1988 under both allocations of the corporate income tax.^{7/} In this table and all subsequent tables, the tenth of the population with the lowest incomes excludes families without positive incomes, although those families are included in the totals.

As the table shows, the share of income in all deciles except the two highest declined between 1977 and 1984 under either allocation of the corporate income tax. The share of income in the highest-income decile increased by 10 percent--from a 31.9 percent to a 35.0 percent

7. Family income deciles are formed by dividing the total number of families, ranked by income, into ten equal groups. Because family income includes the family's share of the corporate tax, and because the share depends on which allocation method is used, families may have different incomes and may lie in different deciles under the two allocations.